Invited Editorial

To accompany Hendriks J et al

Integrated care for the management of atrial fibrillation – what are the key components and important outcomes?

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In this issue of *Europace*, Hendriks and colleagues report the findings of a post-hoc analysis of the effect of a nurse-led integrated AF care package, supported by a bespoke software system based on then current (2010) European Society of Cardiology guidelines, compared to usual care (out-patient cardiologist clinic) on all-cause mortality in 712 patients with AF.(1) Integrated care resulted in fewer all-cause deaths compared to usual care (13 (3.7%) vs. 29 (8.1%); hazard ratio (HR) 0.44; 95% confidence intervals (CI) 0.23-0.85; p=0.014). Of note, all deaths were adjudicated by an independent panel of experts who were blinded to treatment allocation.

Investigation of the impact of integrated AF care on mortality is important given that 7 out of every 10 deaths in AF patients are attributable to cardiovascular causes.(2) Death is finite and although other outcomes, such as stroke reduction and quality of life are important, interventions that impact on mortality are imperative and identifying what components of these interventions reduce mortality (and other outcomes) is vital. As the authors allude to, guideline-adherent treatment, patient education, co-ordinated care and dedicated follow-up, multidisciplinary (MDT) input and collaboration, were all elements likely to have contributed to the significant reduction in all-cause mortality evident in this post-hoc analysis.(1)

The interest in integrated care for the management of AF has garnered significant attention over the last 6-7 years, propelled by the findings of the original paper by Hendriks et al.(3) In the original study, the primary outcome, a composite of cardiovascular hospitalisation and cardiovascular mortality, was significantly lower in the integrated care arm over a mean follow-up of 22-months compared to usual care (51 (14.3%) vs. 74 (20.8%), respectively; adjusted HR 0.63; 95% CI 0.44-0.90).(3) Individually, cardiovascular hospitalisations (13.5% vs. 19.1%, respectively; HR 0.66; 95% CI 0.46–0.96, p=0.029) and cardiovascular mortality (1.1% vs. 3.9%; HR 0.28; 95% CI 0.09–0.85; p=0.025) were significantly less in those receiving integrated care compared to usual care. This was a pivotal paper as integrated care as a concept for the management of AF was untested prior to the paper by Hendriks et al.(3) and

their new data (1) add weight to the call to adopt integrated care as the management approach for AF.

All major clinical guidelines on the management of AF have subsequently advocated a more holistic approach to patient care but the guidelines have thus far failed to describe exactly what 'integrated care' for AF should include.(4-6)

Why the lack of a standardised definition? Since 2012 only a few studies have tested 'integrated AF care' interventions.(7-10) These studies have varied in their design (2 randomised controlled trials (RCT),(8, 9) one cluster RCT,(10) and one 'before-and-after' study (7)), setting (primary care (8); hospitals(7, 9, 10)), composition, content and delivery (mode, personnel) of the intervention, primary outcomes (proportion on appropriate oral anticoagulation (OAC),(10) composite of death or unplanned readmission,(9) death, CV hospitalisation and AF-related emergency department (ED) visit,(7) unplanned ED visit or cardiovascular hospitalisation(8)), length of follow-up, and perhaps fundamentally, all have lacked a theoretical basis for the intervention (i.e., behavioural change theory). The findings have also been inconsistent, with two studies showing benefit of integrated AF care,(7, 10) while two have not.(8, 9)

A nurse-run, physician-supervised AF clinic incorporating group education on AF symptoms, investigations and treatment demonstrated a significant reduction in the composite endpoint of death, CV hospitalisation and AF-related ED visit (17.3% vs. 26.2%; odds ratio (OR) 0.71; 95% CI 0.59-0.9; p=0.049) in this 'before-and-after' study.(7) An international, multi-centre study (IMPACT-AF) examined the change in the proportion of patients on OAC at 1-year following a comprehensive package, including patient and healthcare professional education, with regular monitoring and feedback on OAC rates to HCPs.(10) Unsurprisingly, there was a significant increase in OAC prescription from baseline to 1-year among those receiving the intervention compared to usual care (68-80% vs. 64-67%, respectively; OR 3.28; 95% CI 1.67-6.44 between groups), most likely driven by feedback to physicians on OAC rates.(10) The SAFETY study(9) found no difference in the co-primary

endpoint of death or unplanned readmission between patients receiving nurse-led care (home visit, prolonged follow-up, with MDT support as required) vs. usual care (76% vs. 82%, respectively; HR 0.97; 95% CI 0.76-1.23; p=0.85). Most recently, a primary care based intervention, comprising a clinical decision support system (guideline-based physician monitoring with optional patient self-monitoring),(8) did not demonstrate benefit over usual care in reducing unplanned ED visits or CV hospitalisation (HR 1.02, 95% CI 0.73-1.41; p=0.93) or major bleeding (HR 0.91, 95% CI 0.32-2.60; p=0.87) (Data unpublished, presented at American Heart Association 2018).

One approach is to streamline the decision-making management approaches to allow them to be uniformly applicable across the whole AF patient pathway, starting with primary care and linking with secondary care (including cardiologist and non-cardiologists), and understandable for the AF patients, to enable them to engage and manage their care. Importantly, the approach should be simple, practical and easily operationalised.

The ABC (Atrial Fibrillation Better Care) pathway(11) for the management of AF focuses on important outcomes for patients (and physicians), namely reduction in stroke/thromboembolism with appropriate anticoagulation, symptom control or elimination, and management of cardiovascular comorbidities, to reduce hospitalisation and other adverse outcomes, and to improve quality of life. Independent studies have demonstrated that compliance with ABC pathway translates into improvement in hard end-points such as death, stroke, and CV events.(12-14) One prospective clinical trial is currently in progress.(15)

However, a truly integrated AF management, in addition to comprehensive assessment and systematic implementation of guideline-adherent therapy, would require other essential components, including appropriate interdisciplinary/MDT expert input, co-ordinated care, continual appraisal of the care pathway, supported by electronic platforms to guide decision-making and capture data for service evaluation,(16) and fundamentally, patient education and empowerment,

and family/carer involvement. The ABC pathway is adaptable to help operationalise this, spanning multidisciplinary healthcare professionals, healthcare providers, patients and families/carers.

Clinical decision support tools for healthcare professionals and patients have been developed and technological innovation has led to a huge number of apps and other e-health and m-health resources, most of which have not been formally tested in prospective trials. Essential components of integrated care for AF need to be clearly defined and supported by evidence. In order to provide integrated care for patients we must make a deliberate effort to change organisations, practice and behaviour to systematically implement and achieve the full benefit of clinical interventions and make these changes sustainable within different healthcare systems. Simply providing educational initiatives to a selected group of healthcare professionals, without consideration of bespoke needs, behavioural change approaches or patient engagement is probably inadequate. It is not only healthcare providers' practice and behaviour that needs to change, but also that of patients (and perhaps their families/carers).

Funding: None

Conflicts of Interest:

DL has received investigator-initiated educational grants from Bristol-Myers Squibb and Boehringer Ingelheim; has been a speaker for Boehringer Ingelheim, Bayer, and Bristol-Myers Squibb/Pfizer; and has consulted for Bristol-Myers Squibb, Bayer, Boehringer Ingelheim, and Daiichi-Sankyo. DL has also been a member of the American College of Chest Physicians AF guideline writing committee.

GL has been a consultant for Bayer/Janssen, BMS/Pfizer, Medtronic, Boehringer Ingelheim, Novartis, Verseon and Daiichi-Sankyo. Speaker for Bayer, BMS/Pfizer, Medtronic, Boehringer Ingelheim, and Daiichi-Sankyo. No fees are directly received personally.

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